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Robert Fiore



**PATENT**

Avery No. 2419-US

Atty Docket No.: 11286-01083

New Atty Docket No.: 67134-5021

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Steven Craig Weirather, Brian R. McCarthy,  
Sunjay Yedehalli Mohan, Charles Thurmond  
Patterson, Tony Lee Scroggs and Patricia L.  
Cross

Serial No. 09/158,728

Filed: September 22, 1998

For: **SHEET OF PRINTABLE BUSINESS  
CARDS**

Group Art Unit: 1772

Examiner: Alicia Ann Chevalier

Confirmation No. 4296

Mail Stop AMENDMENT  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

### DECLARATION OF GARY ALLEN BAUM, Ph.D.

Sir:

I, Gary Allen Baum, hereby declare that:

1. My business address is 11810 Wildwood Springs Drive, Roswell, Georgia 30075.

2. My professional resume (four pages) is attached as Appendix II; and all the information therein is true and correct.

3. I have studied the above-captioned application as filed, the claims as currently pending, the Final Rejection dated January 12, 2006, the Amendment filed with a Request for Continued Examination in response to the Final Rejection on June 12, 2006, a proposed amendment to claim 479 attached hereto as Appendix I, WO 95/34879 (Viby), and U.S. Patents 4,863,772 (Cross), 5,407,718 (Popat, et al.),

4,833,122 (Doll), 4,704,317 (Hickenbotham), 5,993,928 (Popat), 5,198,275 (Klein), 5,702,789 (Fernandez-Kirchberger), 5,571,587 (Bishop, et al.), 4,447,481 (Holmberg, et al.) and 5,842,722 (Carlson).

4. Of all the patent documents identified above, Fernandez-Kirchberger in my opinion is the closest to the invention of the subject application, and in particular is closer than the Cross and the Popat, et al. patents, which were applied in rejecting the claims in the Final Rejection. Both Fernandez-Kirchberger and the subject claimed invention are directed to sheets of non-tacky business cards having smooth through-cut edges. The sheets are adapted to be sheet-fed into a printer or copier for a printing operation on the cards, which can then be separated into individual printed business cards having clean cut edges.

5. The card sheet of Fernandez-Kirchberger has a number of problems which were first solved by the present invention, as explained in the following five paragraphs.

6. First, the Fernandez-Kirchberger sheets have "gaps" as shown by reference numerals 14, 16 and 18 in FIG. 1 of that patent. The gaps are formed by the portions of the cuts which do not have any tape backing. Because of these gaps, the cards of the taped card sheet may not lay flat as they travel around small radius rollers in a printer or copier, especially at those cut lines bounded by the matrix waste material on the edges. Thus, when this sheet is fed into a printer, the print head of the printer can hit a raised edge at the gap and create an ink smear on the card face.

7. Second, Fernandez-Kirchberger shows a card sheet with varying thicknesses due to the taped and the untaped regions and the cards of the card sheet are only held along two edges. The varying thickness and the holding on only two edges can cause the cards of the sheet to separate from the tape when bending around small radius printer rollers or during handling.

8. Third, the printer or copier ink can pass through the above-mentioned gaps and bleed onto the back of the cards when the Fernandez-Kirchberger sheets are passed through the printer or copier.

9. Fourth, if a user separates the printed cards from a Fernandez-Kirchberger sheet by pushing up on the back of the card and grasping and pulling the card at the gap edge, stresses can be concentrated on the corners of the printed card. Because the tape runs only along the top and bottom edges of the card, these concentrated stresses can cause the corners of the card to delaminate and split.

10. Fifth, Fernandez-Kirchberger sheets can lock together or snag when being fed from a stack of same into a printer, because the taped-edge die cuts of one sheet can catch on the raised edge of the tape of the adjacent sheet. Special care is thus advisable, such as by fanning the sheets well before printing, to avoid this problem. This may affect whether or not a user can conveniently use an automatic printer feed tray or instead undergo the more laborious process of manually feeding each sheet to avoid the above problem.

11. The present invention solves the five above-discussed problems of Fernandez-Kirchberger in one or more ways not suggested by the prior art, as explained in the following five paragraphs.

12. The present invention uses a dry laminate sheet construction having, according to one definition of the invention, a facestock sheet, a film layer and a continuous sheet. Cut lines through the facestock sheet, but not entirely through the continuous sheet, form perimeter edges of the printable business cards and a matrix waste portion around the cards. Thereby the multi-layer sheet construction has a substantially constant thickness over its entire area. The business cards are arranged on the liner sheet in at least one column, with adjacent cards abutting one another, and surrounded by a facestock sheet matrix portion.

13. The present invention does not have the Fernandez-Kirchberger taped bottom surface and thus there are no tape edges that can get caught on adjacent sheets or in a printer or copier.

14. The multi-layer sheet construction of the invention also does not have exposed through-gaps formed by the cut lines, such as when the sheet is bent, as when traversing printer or copier rollers. It thus does not have the ink smear problem, the ink

bleed problem, the snag or locking problem, and the not-laying-flat problem of Fernandez-Kirchberger, as discussed in paragraphs 6-10 above.

15. The business cards of the present sheet construction do not protrude up relative to the rest of the top surface of the sheet construction (as do the Cross labels). Rather, the cards are surrounded by the matrix portion forming a flat top surface for the sheet, well suited for sheet-fed printing in desktop printers or copiers. Thus, the present sheet construction has a substantially constant thickness and hence does not suffer from the varying thickness problems of the Fernandez-Kirchberger sheet.

16. After the sheet has been sheet-fed into a printer or copier and custom indicia have been printed on the face of the business cards in the sheet, the cards of the present sheet construction can be easily removed by hand from the liner sheet and out of the surrounding matrix portion. The back surface of the removed business card is a non-tacky surface. For example, it can be defined by a (polyethylene) film layer. (In contrast, the back surfaces of the Popat, et al. labels are covered with sticky adhesive, thereby being unsuitable for use as business cards.)

17. I am not aware of any suggestion in the patents cited in the Office Action, including in Cross and/or Popat, et al., for modifying Cross in view of Popat, et al. as was done in the Final Rejection, and as discussed in the following seven paragraphs.

18. Cross describes (column 3, lines 44-61) a construction wherein at station D, die cuts are made to form individual dry labels and the matrix is stripped away, and after or before station D, the dry labels may be printed. "During this step, the matrix of waste facestock must strip readily and cleanly from the liner construction . . ." (Column 3, lines 52-55.) The printed dry labels are removed from the liner, as by an end user from a fan-folded web and after delivery of the web to the user. The dry labels can be removed manually as depicted in FIG. 1C or mechanically as depicted in FIG. 6A. The printed dry labels when on the liner are spaced apart and not surrounded by any matrix so that they can be easily, consistently and quickly removed, such as off the moving liner 21 as shown in the Cross drawings.

19. Cross does not disclose a sheet construction which is sized, constructed and adapted to be sheet-fed through a printer or copier. "Sheet feeding" means that

individual separate sheets, such as 8½ x 11, 8½ x 14, or A4 sheets, are held in a stack or pile and fed one at a time into the printer, rather than being fed as connected sheets, for example as in a fan fold, or as a single long narrow sheet in a roll form.

20. Cross does not disclose a matrix waste portion which is structurally held together with business cards and which is capable of being sheet-fed in a printing operation on the business cards.

21. In contrast to Cross, Popat, et al. describes a sheet of adhesive (not dry) labels with the matrix attached for sheet feeding through a printer or copier and with the adhesive labels in abutting relation.

22. Popat, et al. does not disclose printable business cards.

23. Cross and Popat, et al. thus are directed to and disclose two very different products constructed for two very different purposes; Cross and Popat, et al. differ in kind from each other; and accordingly, I am not aware of any reason why one would have combined their teachings.

24. Assuming only for discussion purposes that Cross and Popat, et al. are from analogous arts, a person of ordinary skill in the art would not have modified Cross in view of Popat, et al. as was done in the Final Rejection for at least the following reasons:

(a) One would not have modified Cross to retain the matrix, as this would have made it very difficult to access and remove the printed labels manually (as shown in Cross FIG. 1C) or very difficult to remove the printed labels in a continuous automated process (as shown in FIG. 6A) as the matrix would tend to interfere with the dispensing of the labels (for example, by jamming the dispensing machine).

(b) One would not have modified Cross to position the (liner-carried) dry labels so that they abut one another in rows and/or columns, as this would also have made it very difficult to access and remove the printed labels, as discussed in paragraph 18 above. In an automated process as shown in FIG. 6A, if labels abut one another in the machine direction, no gap between labels is formed which typical equipment needs to index the next substrate. If the labels are

cross-direction abutted, conventional (single-width) equipment would not be able to properly dispense them onto a substrate.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.



Dated: September 11, 2006

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Gary Allen Baum, Ph.D.

**APPENDIX I**

479. A printable business card sheet, comprising:

a dry laminate sheet construction including a facestock sheet construction and a continuous sheet attached to a back side of the facestock sheet construction;

the facestock sheet construction including a facestock sheet ~~and a film layer~~;

the dry laminate sheet construction including a film layer;

the facestock sheet being a cardstock sheet;

facestock continuous through-cut lines through the facestock sheet construction to the back side but not through-cut through the continuous sheet;

the through-cut lines defining at least in part perimeter edges of printable business cards and a matrix waste portion around the printable business cards;

the dry laminate sheet construction being sized, constructed and ~~adapted to be capable of being~~ sheet-fed through a printer or copier for a sheet-fed printing operation on the printable business cards;

areas of the continuous sheet being positioned over back sides of all of the through-cut lines and thereby the continuous sheet is structurally capable of holding the printable business cards and the matrix waste portion together during the printing operation;

a top surface of the facestock sheet construction being constructed and adapted to receive indicia printed on the top surface during the printing operation; ~~[[and]]~~

the continuous sheet and the through-cut lines being constructed and adapted to allow the business cards to be removed and separated from the continuous sheet and from the matrix waste portion after the printing operation into individual printed business cards whose back side surfaces ~~are formed by the film layer and~~ are non-tacky; and

~~wherein~~ the printable business cards ~~[[are]]~~ being arranged in a grid on the facestock sheet construction, the grid including a column of printable business cards, and adjacent ones of the printable business cards in the column directly abut one another and share a common edge.

## **APPENDIX II**

### **GARY ALLEN BAUM**

**Professional Resume**

**September 2006**

**Address:** 11810 Wildwood Springs Drive Roswell, GA 30075

**Telephone:** (770) 649-7062 (w), (770) 366-3114 (cell)

**E-mail:** gabaum@paperfuture.com (w)

**Present Positions:** **President & Partner**  
**PaperFuture Technologies LLC**  
**885 Woodstock Road, Suite 430-187**  
**Roswell, GA 30075**

**Adjunct Professor – Chemical Engineering**  
**Georgia Institute of Technology**

#### **EDUCATION:**

**Wisconsin State University**  
**Oklahoma State University**

**B.S. (1961) - Math/Physics**  
**M.S. (1964), Ph.D. (1969) - Physics**

#### **ACADEMIC AND INDUSTRIAL EXPERIENCE:**

**PaperFuture Technologies LLC:** **2002-**  
Founder and Principal of company focused on application of new techniques and uses for paper. Primary focus is on intellectual property, technology assessment, education and product development.

**Institute of Paper Science and Technology (formerly IPC):** **1996-2002**  
*Responsibilities:* Vice President – Research and Academic Affairs and Professor of Physics. Oversee and manage all aspects of academic program and research activities. IPST offers the M.S. and Ph.D. degrees and is accredited through the Southern Association of Colleges and Schools. Academic budget is \$3.2 million with a total of 34 faculty and 80 students. Research budget of \$15.8 million with a staff of 108 in addition to faculty.

*Accomplishments:* Oversaw creation of a \$5 million dues-funded research consortium, including policies for intellectual property and technology transfer. Negotiated a number of license agreements including one startup company. Developed a research portfolio management system for project selection and monitoring. Created an elective research model that enables IPST member companies to participate in program selection and management.

**North Carolina State University:** **1994-96**  
*Position:* Tenured Professor and Head, Department of Wood and Paper Science

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*Responsibilities:* Department included Pulp and Paper Program (with two options - Chemical Engineering or Pulp & Paper Science) and Wood Science Program, a Wood Products Extension Office, and two Pilot Plants. Total of 45 faculty and staff.

*Accomplishments:* Established improved accounting and operational procedures, (including performance appraisals). Secured \$1 million endowment for named Chair. Taught sections of several courses.

**James River Corporation (now Koch Industries):** 1988-94

*Position:* Director, Corporate R & D (1988-94), Van den Akker Fellow (1988-89)

*Responsibilities:* Oversee Corporate research for a \$6 billion company. Staff of 85 with a research budget of about \$8 million.

*Accomplishments:* Worked with five business units to develop new or improved products. Research portfolio included both fundamental and applied projects. Developed quality initiative that earned Corporate R&D the respect of the business units and corporate officers.

**Institute of Paper Chemistry (IPC):** 1969-88

*Positions:* Professor of Physics (1976-88); Head, Dept. Intermediate Studies (1978-88); Director, Paper Materials Division (1983-88). Division included approximately 35 faculty and research staff.

*Accomplishments:* Division research focused on all aspects of fibrous structures. Personal research included ultrasonic measurements of the nine orthotropic elastic stiffnesses for paper for both laboratory and on-machine measurements. I was successful in obtaining industry and government (DOE) grants.

<b>Oklahoma State University:</b>	Graduate student/NASA Trainee	<b>1966-69</b>
<b>Dow Chemical Company:</b>	Senior Physicist (Vapor/ion deposition)	<b>1964-66</b>
<b>Douglas Aircraft Company:</b>	Research Engineer (Optical thin films)	<b>1963-64</b>

**RESEARCH INTERESTS:** Valuation and commercialization of developed technologies, fiber and paper physics, materials science, product development, research effectiveness, and on-machine sensors and control.

**TEACHING EXPERIENCE:**

IPC/IPST (Graduate Courses): Dynamics; Deformable Media; Solid State Physics; Quantum Chemistry; Fibrous Structures; and Paper Physics.

Oklahoma State University (Undergraduate Physics Courses): Mechanics, Heat, and Sound; Electricity and Optics; Engineering Physics I and II

Continuing Education Courses: IPC: Fiber and Paper Physics (Director); Corrugated Containers and Converting (Director); Contributions to many other courses.

**GARY ALLEN BAUM**

**IPST, U. Wisconsin-SP, TAPPI, and PIRA:** Fiber and Paper Physics (Director). Course offered more or less annually since 1985.

**PIRA International:** Paper Science Training Week (2003 - )

**PUBLICATIONS:** Over 26 refereed publications, 1 book (2 in process), 5 book chapters, 4 patents

**STUDENT GUIDANCE:** 6 Ph.D. and 19 M.S. students (list available)

**PROFESSIONAL SOCIETIES AND ACTIVITIES:**

<b>Association of University Technology Managers</b>	1997-05
<b>Society of Wood Science and Technology (SWST)</b>	1995-
<b>International Academy of Wood Science</b> Elected Fellow	1995- 1995
<b>Technical Association of the Pulp and Paper Industry (TAPPI)</b>	1969-
TAPPI <i>Foundation Board of Directors</i>	1996-98
1996 Industry Needs Workshop Committee, Chairman	1994-96
TAPPI Research Management Committee	1994-99
TAPPI R&D Division Award & Aiken Prize	1994
<i>J. Pulp and Paper Science Joint Committee</i> , Chairman	1993-04
TAPPI <i>Foundation Research Funding Committee</i> , Chairman	1992-98
TAPPI <i>Board of Directors</i>	1989-92
TAPPI <i>BOD Research Committee</i> , Chairman	1990-98
Elected <i>TAPPI Fellow</i>	1987
TAPPI <i>Process and Product Quality Division Award &amp; Hunter Prize</i>	1986
R&D Division and Paper Physics Committee (held all offices)	1980
<b>American Physical Society (APS)</b>	1985-

**OTHER HONORS, AWARDS and ACTIVITIES:**

<b>Technical/Academic Program Reviewer</b>	
• <b>Swedish Foundation for Strategic Research</b>	2005
• <b>Canadian NSERC</b> Program Proposal Review	2004
• Fiber Science & Communication Network – <b>MidSweden Univ.</b>	2003
• <b>Australian CRC Review</b> – Monash University - Melbourne	2003
• Paper Science & Engineering – Miami Univ. (Ohio)	1995
<b>U. S. National Archives and Records Administration</b>	
• Advisory Committee on Preservation	2001-
• Advisory Committee on Permanent/Recycled Paper	1994
<b>U. S. National Research Council:</b>	
• Executive Committee on Industrial Technology Assessment	1995-98
• <b>NMAB</b> Currency Counterfeiting Committees (3 committees)	1985-87, 1993-94
<b>USDA Forest Products Laboratory</b> Industry Liaison Committee	1986-95, 1999-02
Associate Scientific Editor, <b>J. Pulp &amp; Paper Science.</b>	1986-88
Editorial Advisor, <b>Paper Trade J.</b>	1985-86

**GARY ALLEN BAUM**

<b>APPITA</b> 1985 Invited Guest Lecturer	1985
<b>International Association of Scientific Papermakers</b>	1984-
<b>Fundamental Research Committee</b> (London)	1983-
Who's Who in the Midwest	1983-
<b>Department of Energy</b> - Sensors Advisory Committee	1981-89
American Men of Science	1980-
<b>Sigma Xi</b>	1968
<b>NASA</b> Trainee Fellowship	1967-69
<b>Sigma Pi Sigma</b> Honor Society	1963-
Wisconsin State Scholarship	1958-59
<b>Bausch and Lomb</b> Science Award	1957

#### **INTERNATIONAL INVITED LECTURES:**

• PAPSAT – 10 <sup>th</sup> Anniversary Keynote Address, Helsinki	2005
• Keynote Address (Sensors and Control Conference – Edinburgh)	2000
• Ehrnrooth Lectures (Helsinki University of Technology, Finland)	1999
• Keynote Speaker, Ekman Conference (Stockholm, Sweden)	1999
• APPI Lecturer (Monash University-Australia)	1995
• Keynote Speaker, Fundamental Research Symposium (Oxford)	1993
• University of British Columbia (Dow Distinguished Lecturer Series)	1988
• Keynote Speaker, EUCEPA Conference (Harrogate, UK)	1988
• Appita, Visiting Speaker (Australia/New Zealand)	1985